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MACHINE-TOOL MOTORS STANDARDIZED; NEW CASTING, STAMPING METHODS SAVE METAL

NUMBER OF MOTOR TYPES CUT -- Stanki i instrument, No 7, 1949

Until recently, some 60 different electric motors for machine tools were being built in the USSR. With each electric-machine building enterprise making 15 different motors, mass production on a conveyer-belt basis was impossible. Soviet technologists have found a radical solution to this problem: the number of different motors within any given power range has been drastically cut. In the 2- to 8-kilowatt range, for instance, there are now only three motors where previously there had been 15. In the future, machine-tool designers must review existing specifications and adapt their power requirements to the new series of asynchronous electric motors.

METALWORKERS PLEDGE MATERIAL, RUBLE SAVINGS - Stanki i instrument, No 6, 1949

The Moscow Conference on High-Speed Metalworking Methods has pledged to release 300 million rubles during 1949 by speeding the turnover of working capital. More than 1,700 Stakhanovites, workers, scientific-research workers, designers, and representatives of institutes and main administrations of the Ministry of Machine-Tool Building participated in the conference. The conferees worked in five groups: casting, forging and stamping, welding, machining, and heat treating.

Machine moulding, it was pointed out, comprised only 50 percent of all moulding done. The figure should be 65 - 70 percent.

Due to the rapid increase in the production of casting materials, the casting production cycle was found to have tripled in speed and its wage expenditure cut nearly in half. Consumption of fuel per ton of cast material had dropped from 173 kilograms to only 75 kilograms.

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The use of cold forging instead of machining has proved to be highly profitable in making certain machine parts. The following table contrasts the cost in rubles of making 1,000 units each of parts "a" and "b" by the two methods.

	Part A		Part B	
	Machined	Cold-forged	Machined	Cold-forged
Metal	70	13.5	34	11.8
Wages	50	0.75	[illegible]	4.2
Plant expenditures	240	16.5	164	28.8
Tool	390	200	2,105	1,590
Total	750	230.75	2,344.4	1,634.8

Because of the cost of the matrix and die, cold forging is unprofitable unless 5,000 or more pieces are to be made.

The stamping of bearing races in a one-piece die, rather than a divided die, was also discussed at the conference. It was pointed out that during 1948, about 50 percent of the total stamping was one in one-piece dies. Uniformity in size, external and internal concentricity, and low wear on the die are advantages of this method. Productivity in both the stamping and machine shops is increased 6 - 8 percent. One million rubles and 400 tons of metal were saved during the year by one-piece stamping.

The conferees also discussed a new method of making bearing races by hot rolling. The method, which is now in use, has accomplished the following savings:

Race Diameter	Metal Saving (tons)	Labor Saving (%)
Up to 120 mm	200	3 - 5
160 to 260 mm	200	50
300 to 750 mm	100	25 - 30

In the field of welding, it was shown that it is now possible to conduct automatic flux welding on continuous or noncontinuous seams, vertically or horizontally, on low-carbon, alloyed, and high-alloyed austenite steels.

The use of inductive heating with high-frequency currents for high-temperature soldering is one of the new high-speed methods in metalworking. However, the conference was told that electric heating in general was still lagging in industry. While the number of parts now tempered by high-frequency currents is growing, there remains the necessity of eliminating from case hardening certain chemical and thermic processes such as cementation, cyanidation, and others which still have not been converted to high-frequency methods. Electric case hardening will not only speed up the process but improve the quality of the product as well.

The importance of widening the use of nonoxidizing heat treatment was also noted. At present, designs for nonoxidizing heat treatment units have been worked out at a number of plants. These can operate on practically any type of fuel, including generator gas, pyrolusite gas, and others. The method speeds production, cuts down the amount of machining necessary to finish the part and saves metal.

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NEW GAUGE SPEEDS SHAFT MACHINING -- Stanki i Instrument, No 8, 1949

A new electromechanical dial gauge now frees the turner from the time-consuming job of checking the blank during the turning of graduated shafts. The device automatically stops longitudinal feed at a precision limit of 0.1 millimeter. The gauge was designed for the D1P200 and D1P20M machines, but can be used on any lathe having a worm-gear longitudinal feed. The gauge cuts the time of auxiliary operations 30 - 50 percent, increases labor productivity 20 - 25 percent, and permits machining of graduated shafts at maximum speeds.

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